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FOURTH

ANNUAL REPORT

OF THE

DIRECTORS

OF THE

WESTERN RAIL-ROAD CORPORATION,

TO THE STOCKHOLDERS.

1839.

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TO THE STOCKHOLDERS.

Submitted Feb. 13, 1839.

BOSTON :
GOULD, KENDALL & LINCOLN,
59, Washington-Street.
1839.



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REPORT.



To the Stockholders of the Western Rail-Road Corporation.

WHEN the Third Annual Report of the Directors was submitted to the Corporation, a Bill was pending before the Legislature, "to aid the construction of the road;" a copy of which was then presented. That Bill was passed without material alteration, and received the approval of the Executive on the 21st of February, 1838. And it was printed in connexion with that Report. It authorized the issuing of the scrip of the State for two millions, one hundred thousand dollars, on certain conditions therein set forth, all of which have since been fully complied with. And the Directors ask leave to refer to the printed copy of that Act, for detailed information of its contents.

Having recently transmitted to the Legislature a full report of their operations the past year, of the present condition of the work, and the prospects of its future advancement, the Directors think they cannot better answer the purposes of this communication, than by submitting to the Stockholders copious extracts from that document.

“ At the date of the last Report, the whole line of the road *eastward* of Connecticut river, a distance of fifty-four miles, (with the exception of two miles adjoining the river), had been put under contract for grading, the graduation of twenty-seven miles of the lighter parts of it had been completed, and the work was in progress upon the remaining twenty-five miles.

“ Soon after that time, the two miles adjoining the river were contracted, and the work of graduation upon all the unfinished sections has since been vigorously prosecuted. At the present time, there are about fifty-two miles fully graded ; and, excepting at four points upon the line, the grading is nearly finished. The excepted points are, at New Worcester, at the summit in Charlton, at Twelve Mile Brook in Wilbraham, and the sections near Connecticut river. At all these places, excepting at the Charlton summit, the work was much retarded for six or eight months prior to the grant by the last Legislature, by the uncertainty which existed, whether funds would be provided for the prosecution of the enterprize. They are now, however, so much advanced, as to justify the belief that they will be ready for the rails in the month of May next. The lighter intermediate sections, upon portions of some of which the grading is yet unfinished, may easily be completed during the winter.

“ Of the *Masonry*, little remains to be done, excepting the construction of a few road bridges, and these will be forwarded at an early day.

“ The *Rail-Road Bridges* upon this part of the line, were contracted for in May last. About half of them are constructed and the materials for the residue are delivered, and they are now in preparation.

“ The tables and schedules hereto annexed, will exhibit more in detail the quantity of work which had been done east of the river up to the 30th of Nov., 1838, and that which then remained to be done. These embrace the quantity of earth, loose rock, and solid rock excavated and remaining to be excavated ; the masonry and bridging executed, and remaining to

be done ; the number of rail-road bridges, road bridges and culverts, and schedules of the grades, curves, and of some of the larger cuttings and embankments ; with a specification of the distances, by the road, between some prominent known points.

“ The attention of the Board has been seasonably directed to providing materials for the *superstructure* of the road east of the river. They have adopted the *edge rail*, of the T pattern, weighing about fifty-six and a half pounds to the yard. This is laid upon transverse sleepers, of seven inches, placed three feet apart from centre to centre ; and these have their bearings under the rail, upon longitudinal sills, eight inches by three, which are wholly imbeded on a roadway of gravel or sand. The *timber* for the superstructure has all been contracted for, and that for about thirty-eight miles is already delivered. The residue will be received in season for early operations in the coming spring. The *Iron* for about seventeen miles of the road was purchased early the past year, and it has arrived and is principally delivered on the line, and that for the residue is contracted for, with orders for its shipment in season for the spring and summer operations.

“ In the mean time, about six miles of the track have been laid, ready for use, commencing two and a half miles from Connecticut river, and extending eastward. The laying of the residue of the rails will be commenced in the spring, and completed at the earliest practicable period.

“ The *Engines* and *Cars*, necessary to put this part of the road in full operation, are under contract ; the former to be built at Lowell, and the latter at Worcester and Springfield ; and it is believed, they will be fully equal to any now in use in the country.

“ Suitable and convenient *Depot Lands* for the stations have been secured at Worcester, Charlton, South Brookfield, West Brookfield, Warren, Palmer, Wilbraham, and Springfield ; and negotiations are in progress for lands for the same purpose, in the village of Clappville. These are all the points at which

the Directors have as yet decided to locate the stations ; thus providing for the trains to stop seven times, between Worcester and Connecticut river, a distance of fifty-four miles. These lands have all been procured at the inconsiderable expense of \$4,200.

“ The *damages* for *land*, and *fencing* for the road way, have all been settled, with the exception of less than one mile at different intervals ; and the few remaining claims are liquidated by agreement, or by adjudication of the County Commissioners. The average cost, exclusive of half a mile in Worcester village, was formerly estimated at \$1,240 ; and it proves to be about \$1,250 per mile, including all incidental expenses of commissioners, references, and one jury. The number of separate claims thus adjusted is about three hundred and fifty.

“ The Directors have not been unmindful of the importance of persevering effort to open this part of the road for use, at an early day. They have for some months directed the particular attention of the executive officers of the Corporation to this object ; and, it is believed, no exertion has been wanting to accomplish it. Although a great part of the road has been graded, and contracts have been made for the materials for the superstructure, and for the engines and cars, yet the undersigned beg leave to remind the friends of the enterprize, that much remains to be done, before the road can be efficiently opened for public use. In addition to the remaining part of the grading, masonry, and bridging—the delivery, preparation, transportation, and proper distribution of the iron, plates, spikes, sills and sleepers for the superstructure, the laying down of forty-eight miles of track, with the necessary turn-outs, the preparation of the depot grounds, the erection of the buildings at nine stations, the delivery and trial of the engines and cars, the means for the supply of water at the several stations, the erection of signs at the road crossings, the purchase of fuel for all the stations, and the employment and organization of the various subordinate officers, required for the moving power, and for superintending the business of the road, will demand much

time and labor on the part of all the officers of the Corporation.

“It must also be borne in mind, that although the various contracts are believed to be made with the most responsible men, yet the punctual fulfilment of their engagements is not within the control of the Corporation; and a failure to perform any one of them, may cause serious embarrassment and delay of the work.

“It will be recollected also, that, while these various branches of labor are in progress, much of the attention of the officers must be directed to the whole line of sixty-two miles westward of the river.

“In view of all these considerations, the undersigned think it would be hazardous to name now, *with certainty*, any particular date at which the road east of Connecticut river will be in successful operation. It will be done at the earliest period consistent with the great object in view. And if no unforeseen obstacle interposes, they flatter themselves that that event will not be postponed beyond the month of September next.

“At the time of presenting our last Report, the field work for the location of the road, *westward of Connecticut river*, had just been completed, and the maps and estimates were in progress. The line of definite location passed through the towns of Westfield, Chester, through the Pontoosuc Valley to the summit in Washington, and thence through Hinsdale, Dalton, Pittsfield, and Richmond, to the state boundary. The order of the Board directing this location, had, however, reserved three points for subsequent decision; viz., in the direction of the lines through the villages of Westfield and Pittsfield, and the western termination of the road, either at the Canaan Gap at West Stockbridge, or at Hatch’s Gap in Richmond. It was then uncertain at which of these terminations the friends of the Albany road would prefer to connect with our line.

“At the presentation of the report upon our final location, it was however ascertained, as far as was then practicable, that their preferences were for the union at the Canaan Gap; and

the Board established their location directly to that point, leaving the village of West Stockbridge about one mile south of the line. The route passing a little north of the common in Pittsfield, was also established.

“Through the town of Westfield, two general routes had been surveyed, the one passing directly through the village, and south of the Great river; and the other entirely north of the river, and about two-fifths of a mile from the village common. The south route required three crossings of the Westfield Great, and Little Rivers, and the cost of it was estimated at about \$13,000 more than the northern one. On these accounts, the Engineers, in their report upon the final location, awarded their preference to the northern route. At the request of the inhabitants of the village, however, the Directors appointed a Committee to view the premises and report their opinion thereon, and directed farther examinations, by the Engineers and Agent, upon both routes. The Committee visited Westfield and examined all the routes, and heard the parties.

“The additional examinations and surveys are now in progress, and the results with the report of the Committee, are expected in a short time, when the definite location there will be established.

“The act of the last Legislature, in aid of the Corporation, required them, during the year 1838, to ‘commence the construction of such part of the road, lying between Springfield and Pittsfield, as would require the longest time for its completion, and to prosecute the same in such a manner, as to secure the completion of the whole road from Springfield to the western line of the State, as nearly as was practicable, with a due regard to economy.’

“This provision accorded with the judgment and wishes of the Directors, and in pursuance of it, they, in March last, ordered about thirty-four and a half miles of the western part of the road to be put under contract, extending from near Henry’s tavern in Chester, to the State line, and including the the heaviest part of the work; with a *proviso*, that upon

eleven and a half miles of it between the village of Pittsfield, and the summit in Washington, the work should not commence until it should be necessary, in order to secure its completion by the time the more difficult sections should be graded. Under this order, the grading upon the remaining twenty-three miles was commenced in June last, and it has been prosecuted with as much efficiency as was practicable to the present time. About five miles of it are already graded.

“The Stockholders in the western part of the State, were early encouraged, that the part of the road west of Pittsfield would be put in operation as soon as the portion of the line eastward of Connecticut river; and the Board have always been strongly desirous to fulfil this expectation. The limited means of the treasury, however, during the latter part of the year 1837, and the winter of 1838, rendered it impossible for them to commence that work, without incurring obligations, which they had no means of meeting. But as soon as was practicable, after funds were provided by the liberality of the last Legislature, that division was let to efficient and responsible contractors, with express obligations in the contracts to complete the grading by the 1st of July, 1839; and they have ever since been required to keep upon the heavier sections of it, as large a force as they could employ, without greatly disproportioned expense. And the Directors have heretofore still indulged the hope, that the whole might be completed by the desired time. As the work has advanced, however, the character of the cuttings upon some of the heavier sections has proved much more difficult than had been anticipated; and the resident Engineer is now of opinion, that there are two of those sections, which it will be impossible to finish within the time specified in the contracts. But no exertions will be spared to expedite this work, and to place the superstructure upon it as soon as is practicable.

“The work upon the eleven and a half-miles, between Pittsfield and the Washington summit, will now be commenced in a few weeks.

“The division from the summit, to near Henry’s in Chester, a distance of about eleven and a half miles through the Pontoosuc valley, embraces much very heavy rock excavation, and extensive embankments, with a large quantity of expensive and heavy masonry. The two summit sections have a long rock cutting, a part of which is fifty-eight feet deep, and two large embankments of forty-nine and thirty-seven feet in height. The contractors for grading these, stipulate to finish them by the first of July, 1840; but, in one contingency, they are to be allowed till the close of that year, to perform the work. They are now proceeding with it very satisfactorily, but in the present state of the work, no definite opinion can be formed as to the time when it will be completed. The other sections of this division may be graded somewhat within the time allowed for those at the summit.

“The character of the country between Henry’s and Connecticut river, being twenty-eight miles, is such as to need much less time for its grading, than the summit Division, though there are points in the former which may require some fifteen months. The Directors therefore, judged it impolitic to commence upon it during the past year. But an order has now been issued, to advertise, and put it under contract for grading, as early as is convenient.

“The propriety of pushing forward this part of the work, and the mode of conducting it, will depend, somewhat, upon the question, whether an attempt should be made to open it for use before, and independently of, the heavier summit division. This question, again, depends upon the time when the summit sections will probably be graded. And it is supposed that this point cannot reasonably be ascertained, before late in the next season, when the character of the rock cutting there, may be more clearly developed. If this should then forbid the hope of grading the summit sections before the close of 1840, the Directors would, probably, desire to have the twenty-eight miles east of Henry’s, then so far advanced, as to enable them to finish the grading of them in the summer of

1840, and to open that part of the line for use in the course of that year.

“If, on the contrary, it should, during the next season, appear, that the summit division might all be prepared for the superstructure, by July 1840, it would then be about as much advanced as the work east of it could well be, and the whole might probably be opened for use at the same time.

“In thus setting forth the condition and future prospects of this road, it may not be improper to state briefly the condition of the enterprises, of a similar character, with which it is proposed hereafter to connect it.

“At its western termination, the Hudson and Berkshire road has been completed, and opened for use within the past year, under prospects of business, flattering to its friends. And that road has been extended and opened to the village of West Stockbridge, a distance of two and three-fourths miles within this State.

“Within a short time, a very large meeting of the friends of the Albany and West Stockbridge Rail-road, has been holden at Albany, and energetic measures have been adopted to secure the prosecution of that work during the year 1839.

“A Rail-road is also now in grading, which is to extend from the Long Island sound at Bridgeport, through the Housatonic valley, to West Stockbridge.

“One half of the New Haven and Hartford road, is now in use, and the grading upon all the residue of it, is advancing rapidly. Surveys are also completed for a Rail-road from Hartford to Springfield, with a view to unite that with the Western road; and a petition is now pending before the Legislature for a charter to construct the same.

“And the friends of the Norwich and Worcester road, give strong assurances, that it will be in operation before the close of 1839.”

Pursuant to a vote of the Stockholders, at a special meeting of the Corporation holden in December last, the Directors have

presented to the Legislature at their present session, a petition for an additional grant of the credit of the Commonwealth to an amount, not exceeding one million five hundred thousand dollars, to enable them to complete the road, the same to be in the form of State Scrip, as provided in the act of 1838. A full hearing has been had before a large select joint Committee of the Legislature; and the Directors have assurance that the Committee will, at an early day, report a bill in favor of the objects of the petition; and they confidently anticipate the favorable action of the two houses thereon.

OF THE FINANCES.

“At the close of the last year, a full report was made to the Board, upon the subject of the *Finances*, embracing the estimated cost of the whole work, and the whole means provided therefor, an account of past expenditures, and present resources, and the amount necessary for the future. The following is an abstract of that document.

Estimated Cost of the Road.

1st. <i>East of Connecticut river—</i>	
For graduation, masonry, bridging, super-structure, engines, cars, depot buildings, and engineer department,	\$1,739,163 30
Miscellaneous expenses, including salaries, printing, stationary, rent of offices, expenses of directors and committees, and all incidental expenses, from Jan. 1836, to Dec. 1839, including \$8,000 for surveys in 1835,	34,652 72
Depot Lands,	4,000 00
Land damages, and fencing 54 miles,	86,913 10
Total cost east of the river,	\$1,864,729 12

Brought up, \$1,864,729 12

2d. *West of Connecticut river—*

For graduation, masonry, bridging, super- structure, engines, cars, depot buildings, and engineer department, (the latter to Dec. 1840,)	\$2,213,493 47
Miscellaneous expenses to April 1, 1841, (including as before,)	28,497 12
Land damages, fencing, and depot lands,	84,452 02
Total cost west of river, 62.6 miles,	<hr/> \$2,326,442 61
Total cost of the Road, 116.6 miles,	<hr/> \$4,191,171 73

Resources of the Corporation.

Six assessments, being \$30 on 30,000 shares, and interest available thereon, deducting probable losses,	\$910,643 30
Proceeds of State Scrip of 1838,	2,100,000 00
Total resources,	<hr/> 3,010,643 30
Balance to be provided for,	<hr/> \$1,180,528 43

Past Expenditures and Resources for the Future.

On Dec. 1, 1838, there had been expended and paid,	\$1,259,619 11
Which left of available resources, applicable to payments after that date,	1,751,024 19
Amount estimated necessary to complete the road east of the river, and put it in full operation,	<hr/> 755,027 66
Balance amount applicable west of the river, after Dec. 1, 1838,	<hr/> \$995,996 53

“ If the residue of the road *west of the river* should be put under contract, and the work on the whole be commenced by the first of March next, and be prosecuted in the same manner as that *east of the river* has been heretofore conducted, viz., by pushing the heavier sections, as far as is consistent with a prudent economy, and the lighter ones only in such a manner as that the whole may be completed together, it is estimated that there will be required, west of the river, by March 1, 1840—for graduation, masonry, bridging, and engineer department, for the *whole line*, and for superstructure and buildings for stations *between Pittsfield and the State line*, the sum of

\$778,770 64

Leaving on hand March 1st, 1840,

217,225 89

If the whole, including the lighter work, is advanced to completion, as early as is practicable, consistently with economy, there will be required, by March 1, 1840, an expenditure of

898,770 64

Leaving on hand at that date,

97,225 89

Both of these latter estimates are made upon the supposition that the contracts to be now made for grading the 28 miles must be made on condition that the Corporation shall have a right to suspend the work under those contracts, in the winter of 1840, if farther funds are not provided for completing the same. And it is supposed, that as favorable terms cannot be had for such contracts, as would be obtained if no such contingency were to be provided for.

And it may not be amiss to add, also, that the contracts already made for grading the summit division, being made when adequate funds were secured for their completion, may, if those funds are diverted, in part, to the grading of the 28 miles, be suspended also in the winter of 1840, if additional funds are not then provided.

It should be borne in mind, also, that, as before stated, the 28 miles east of Henry's, can, probably, be graded, ready for

the superstructure, by July 1, 1840. And to provide against serious delay in opening that part of the road, the iron and other materials for the superstructure, and the engines and cars, should be contracted for prior to Jan. 1, 1840. These, upon the estimate heretofore made, will cost about \$300,000 00

And if it should be found that the summit division can also be ready for the rails by July, 1840, (which, however, is quite doubtful,) provision should be made for the superstructure and the engines and cars, for the 23 miles between Henry's and Pittsfield, before Jan. 1, 1840—and this will require an additional sum of about \$250,000 00

The State Scrip, issued under the act of February last, is made payable, both principal and interest, at the house of Baring, Brothers & Co., in London, who are constituted the agents of the Corporation, therefore.

And the treasurer has received the same to

the amount of \$900,000 00

Of this there had been sold, at

the last advices, at an advance of from 2 1-2 to 4 per cent. above the par value,

the amount of 588,888 89

And the treasurer has drawn

against the residue, in anticipation of farther sales supposed to have been made, about

241,111 11

830,000 00

And he has paid over to the treasurer of the Commonwealth, on account of premium on sales, and the proceeds of exchange thereon, upon which ac's. of sales were received prior to January 1, 1839,

55,550 35

	Brought over,	\$55,550 35
To which is to be added, when the account of sales is re- ceived, for prem. on sales, and for exchange upon the balance as above,		33,116 80
		<hr/> 88,667 15
To this is to be added the prem. on sales supposed to be made and drawn against as above, on 241,000, say 1 3-4 per ct. net prem.		4,217 50
		<hr/>
Am't. of supposed profits on \$830,000 scrip, is or over 11 per cent.		\$92,884 65

As the scrip has a high character in England, it is confidently anticipated that the balance—\$1,200,000—remaining to be sent out, may produce a premium equal, at least, to the average of past sales. And as the exigencies of the treasury will probably require that the greater part of the proceeds should be drawn for, the present year, and no serious reduction in the price of exchange is now anticipated, it is not unreasonable to assume, that the whole \$2,100,000 will produce a profit of about 11 per cent.

Should this result be realized, the net profit will be	\$231,000 00
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This sum placed at annual interest, at 5 per cent only, for 30 years, will produce	\$998,360 53
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To this is to be added annually, "after the
road is opened for use," 1 per cent. on the
loan, or \$21,000 "from the income of the
road." The first payment from this source

Brought up,	\$998,360 53
will, therefore, be made on the third year of the loan, and be continued for 27 years only. The annual interest, at 5 per cent., on these 27 yearly payments, will increase them to	1,205,425 92
Making the amount of the sinking fund, when the scrip falls due,	2,203,786 45
Which will overpay the principal of the scrip, when due, by the sum of	\$103,786 45

“This surplus may be applied to the expenses of remitting the money to England, if, as is probable, exchange should then be against us ; and if a larger amount should be wanted for this purpose, a portion of the income from the business of the road, may be set apart, annually, for a few years prior to the time it may be wanted.

“It is intended that the semi-annual interest falling due upon the scrip, shall be paid by the Corporation, from the accruing income of the road. And a net income from the business, of 6 per ct. on the capital of three millions, being \$180,000 00
Will pay 1 per ct. to the sink-

ing fund,	21,000 00	
5 per ct. on the loans,	105,000 00	
And 6 per ct. on the 900,000 paid in assessments on the stock,	54,000 00	\$180,000 00

“A bill is now pending in the Legislature for the appointment of commissioners of the sinking fund, and for directing the manner in which it shall be loaned and invested ; and this without charge to the fund. And it is believed, that, in this way, a large part of it may produce six per cent. income, instead of five, as above computed, which will make up any unexpected deficiencies from other sources.

“ The receipts and expenditures of the Corporation, for the year past, as stated by the Treasurer, as of January 1, 1839, are as follows :—

Receipts.

Balance of 3d Annual Account, Feb. 10, 1838,	\$63,414 94	
including balance of notes receivable,	19,224 12	
		82,639 06
Received on 3d assessment,	9,365 00	
“ “ 4th “	15,130 00	
“ “ 5th “	104,640 00	
“ “ 6th “	138,905 00	
		268,040 00
“ for State Scrip, sold at par,	524,444 44	
“ “ Exchange drawn against the balance of Scrip unsold,	202,226 02	
		726,670 46
“ “ Contingent fund,		4,940 00
		<u>\$1,082,289 52</u>

Expenditures.

Amount paid for Incidental Expenses,	9,924 76	
“ “ “ Construction, including Iron,	627,218 90	
“ “ “ Engineer Department,	26,758 68	
“ “ “ Land Damages,	53,228 51	
“ “ “ Timber Lands,	4,142 73	
“ “ “ Depot Lands,	2,286 00	
“ “ “ Interest, being balance, including int. on Loans,	4,674 38	
Balance,*	354,055 56	
		<u>\$1,082,289 52</u>

* The Balance consists of the following items :—

Balance of Cash account,	262,346 07	
“ in hands of W. H. Swift, Resident Engineer,	6,788 84	
“ “ “ “ Geo. Bliss, Agent,	1,415 92	
Cash loaned on collateral,	81,000 00	
Notes receivable,	80,158 11	
	<u>431,708 94</u>	
Less Exchange Ac., or Sinking Fund,	76,868 05	
Bal. due Baring, Brothers & Co., Liverpool,	785 33	
	<u>77,653 38</u>	
		<u>\$354,055 56</u>

“The following is a statement of the whole collections upon the six assessments on the stock, up to February 12, 1839.

No. of the Assess't.	Time when payable.	Amount of each Ass't.	Amounts collected.	Amounts now due.
1st.	Feb. 1, 1836.	\$150,000	\$150,000	
2d.	April 15, 1836.	150,000	150,000	
3d.	Jan. 16, 1837.	150,000	147,030	2,970
4th.	Sept. 25, 1837.	150,000	145,230	4,770
5th.	Nov. 15, 1837.	150,000	144,660	5,340
6th.	June 11, 1838.	150,000	143,635	6,365
Totals.		\$900,000	\$880,555	\$19,445

N. B. The sum of \$9,955 has been collected since Jan. 1, 1839.

“The undersigned from their first connexion with this enterprize as Directors, have felt that onerous duties and a heavy responsibility were devolved upon them, in the care of so extended a work. In the discharge of these duties, they have ever been solicitous to watch vigilantly the expenditure of the funds of the Corporation. The active operations which spread along a line of over 116 miles, necessarily require the employment of a considerable number of executive officers, directly or indirectly responsible to the Board. Through the agency of these officers, the work is constructed, and the disbursements are made, and the Directors have felt it to be incumbent upon them, from time to time, to examine their proceedings, scrutinize their accounts, ascertain the manner in which their several duties were discharged, and personally to inspect their operations, both in the offices and in the field.

“In furtherance of these objects, the Board in April last appointed Messrs. Hudson and Walker, two of their number, ‘a committee, with instructions to make a personal examination and inspection of the several lines located westward of the river, and of the work upon the line of the road between Worcester and Springfield; to examine the mode of making contracts, and the terms of them, and the manner of their fulfilment; to inquire into the nature and extent of the duties de-

volving upon the agent and his assistant, and upon the engineers and their assistants, and the manner in which those duties are performed ; including an examination of the mode of doing business, and keeping accounts in the offices of the agent and engineers ; to inquire into the titles procured for the track of the road, and the mode in which they are secured, and the propriety of the prices paid therefor ; and in general to make a thorough inspection of all the business and affairs of the Corporation, connected with the location and construction of the road.'

" After spending several days upon the line, and in the offices, in the discharge of the various duties assigned to them, the committee made a detailed report to the Directors, which was accepted by them. A copy of that report is hereto annexed, for the inspection of such of the Stockholders as may desire to know the extent of the examination, and the results at which the committee arrived.

" Respectfully submitted,

THOMAS B. WALES,	}	<i>Directors.</i>
EDMUND DWIGHT,		
CHARLES HUDSON,		
JOSIAH QUINCY, Jr.,		
AMASA WALKER,		
GEO. BLISS,		

" *Boston, Feb. 12, 1839.*"

APPENDIX.

STATEMENT exhibiting the amount of earth, loose rock, and solid rock excavated, the number of perches of masonry, (of 25 cubic feet) laid, and number of feet of bridging completed, between Worcester and Connecticut river, on the 30th of November, 1838.

No. of Division.	Earth. Cubic yds.	Loose rock. Cubic yds.	Solid rock. Cubic yds.	Masonry. Perches.	Bridging. Feet.
1	772,196	4,321	69,012	15,894	270
2	545,500	1,019	16,025	9,398	120
3	252,176	3,628	1,710	8,633	312
4	857,555	7,645	14,504	10,128	
Totals.	2,427,427	16,623	101,251	44,053	702

NOTE. On the 1st division, and on a part of the 2d, the contracts were made for earth and loose rock together. The quantity of loose rock cannot, therefore, be exhibited separately upon the sections which were contracted for in the above manner.

STATEMENT exhibiting the amount of earth, loose rock, and solid rock to be excavated, the number of perches of masonry to be laid, and the number of feet of bridging to be put up, between Worcester and Connecticut river, on 30th Nov., 1838.

No. of Division.	Earth. Cubic yds.	Loose rock. Cubic yds.	Solid rock. Cubic yds.	Masonry. Perches.	Bridging. Feet.
1	112,800		6,567	1,500	71
2	12,554		106	700	174
3	58,194	900	1,000	600	600
4	126,307			500	135
Totals.	309,825	900	7,673	3,300	980

SCHEDULE of Grades East of Connecticut river.

No. of Planes.	Inclination per mile.	Length of line on each grade.	No. of planes. Ascending ft.	No. of planes. Descend. ft.
5	Level.	2-071 miles.		
15	0 to 10 feet.	11-800 "		
11	10 to 20 "	8-317 "		
6	20 to 30 "	5-127 "		
8	30 to 40 "	11-375 "		
6	44 to 50 "	11-545 "		
1	51½ "	1-432 "		
1	60 "	2-500 "		
53		54-167 "	22	26

SCHEDULE of Curves East of Connecticut river.

No. of Curves.	Am't. of Curvature.	Length of Radius.
13	½ ° to 1 °	11,459 to 5,730 feet.
22	1 " " 2 "	5,730 " 2,865 "
21	2 " " 3 "	2,865 " 1,910 "
4	3 " " 4 "	1,910 " 1,432 "
1	5 "	1,146
61		

Whole length of straight line about 35 miles.

SCHEDULES of Bridges, Culverts, and large Cuttings and Embankments, East of Connecticut river.

There are 24 rail-road bridges, from 12 to 175 feet long.

" " 11 road and farm bridges.

" " 110 box and open culverts.

" " 8 arch culverts, from 8 to 35 feet span, and from 32 to 191 feet long.

Of the larger cuttings, there are—

10 of from 24 to 30 feet deep.

9 " 30 " 35 "

3 " 35 " 40 "

1 each of 43, 47, 52, and 80.

Of the larger embankments, there are—

9 of from 24 to 30 feet deep.

7 “ 30 “ 35 “

2 of 38 “

1 each of 48, 60, 63, and 63 feet deep.

SCHEDULE of distances, by the line of the rail-road, from the passenger Station house, on the east side of Grafton-st., Worcester, (which is 812 feet west of the junction of the Boston and Worcester rail-road,) to sundry places on the line.

From the passenger station-house, Worcester, to	Towns.	Distance. Miles.	Differ. Miles.	Dist. between sta. Miles.
The Oxford road,	S. Liecester,	8.74		8.74
Leicester and Charlton road, (near Jones')	Charlton,	11.98	3.24	
Summit,	“	12.96	0.98	
Road by Hall's, Charlton station,	“	13.24	0.28	4.50
Road near Nath'l Bemis', .	Spencer.	17.50	4.26	
Five Mile River,	E. Brookfield,	19.78	2.28	
Brimfield road, by sta. land,	S. Brookfield,	22.60	2.82	9.36
“ “	W. Brookfield	25.32	2.72	2.72
Road by “	Warren,	28.22	2.90	2.90
Blair's Saw Mill,	“	31.69	3.47	
Road by A. V. Blanchard's,	Palmer,	37.69	6.00	
Road by Palmer station, (J. Shaw's,)	“	39.10	1.41	10.88
“ near Glover's store. .	Monson,	42.43	3.33	
“ by station, (Stevens'), .	Wilbraham,	46.96	4.53	7.86
Crossing Chicopee Falls road,	Springfield,	51.93	4.97	
Station land, Main-st., . .	“	53.98	2.05	7.02
East bank of Conn. river, .	“	54.16	0.18	
Add from junction of B. and W. road to station-house, Worcester,		0.15		
Whole length of line east of river,		54.31		

WESTERN RAIL-ROAD OFFICE, }
 Worcester, July 24, 1838. }

The Committee appointed by an order of the 12th of April last, “to examine the mode of making contracts, and the terms of them, and the manner of their fulfilment; to examine into the nature and extent of the duties devolving upon the agent and his assistant, and upon the engineers and their assistants, and the manner in which those duties are performed, including an examination of the mode of doing business and keeping accounts in the offices of the agent and engineers ; to examine into the titles procured for the track of the road, and the mode in which they are secured, and the propriety of the prices paid therefor; and *in general*, to make a thorough inspection of all the business and affairs of the Corporation connected with the location and construction of the road,” ask leave to submit the following

REPORT :

The Committee in the discharge of their duty, passed over the road from Worcester to the line of the State at West Stockbridge, and viewed particularly all the principal points on the road; and found that the work was generally progressing as rapidly as is consistent with economy. The Committee turned their attention particularly to the duties devolving upon the agent and his assistant, and the engineer and his assistants. They called upon each of these officers, inspected their books, and inquired into the character and amount of the labors they had to perform; and the examination resulted in a full conviction, that the labors were sufficient to employ those officers every hour of their time. As these duties were more numerous and arduous than the Committee had anticipated, they will give a brief description of them; and if the information is not needed by others, it will at least show that the committee were somewhat particular in their inquiries.

The resident engineer, it is well known, has the general supervision of the location and construction of the road. As a great part of his duties are connected with those of his assistants, we will not enlarge upon them here; believing that a description

of the assistants' labors, all of which pass under his inspection, will give some view of the amount of labor he has to perform.

The assistant engineers have each a division of the road of from eight to twenty miles in length. Their labors are various. As some of them have been upon the road from the first, we will begin with the trial surveys. After a general view of the country, a line is run, and the courses, distances, and altitudes are carefully noted. After these field labors are performed, a computation is made, and if the result does not come within the limits prescribed by the resident engineer, that line is abandoned, and another is sought. Much time and labor are necessarily spent in fixing upon the approximate location. This is required by the strictest economy. A few days or even weeks spent in avoiding a deep cut, or heavy embankment, or sharp curve, or a high grade, might save the Corporation more than a year's salary of one of these officers. When the approximate location is agreed upon, the line is carefully run in stations of 100 feet, and the curves together with the rise and fall noted. In addition to this, cross sections are taken at every station, noting the rise and fall of the land on the right and left of the centre line, and if the surface of the ground changes as it frequently must between the stations, cross sections are taken at such intermediate points. The field labor being thus accomplished, the assistant makes a plan and profile of the route, ascertains the grade, plats the cross sections, and estimates mathematically, the grade, deflection, and the amount of cutting and filling, the number of bridges, and the amount of masonry. In some cases, of course, two or more lines present themselves, so nearly equal in their claims, that a preference cannot be given until all this process is gone through with, and the results compared. Other examinations must be made out of the line of the road. If earth is to be wasted, reference must be had to the place for its deposit; if earth is to be borrowed, a place must be selected from which to obtain it, swamps must be sounded, and hills bored, and the nature of the soil and materials ascertained with as much accuracy as possible. After all these surveys and estimates are made, they are recorded by the assistant in a book kept for that purpose. The results of all these are submitted to the resident engineer, and during the progress of the surveys, his advice and personal attendance are frequently required.

When the location is fixed, and the road put under contract,

the assistants have to go over their divisions, ranging in length from ten to twenty miles, and mark the number of feet of cut or fill at each station, and also erect the slope stakes. The work is commenced, and the centre stakes of course removed on that part of the line, and the slope stakes, by design or accident, are frequently pulled up. If left to themselves, the workmen would be likely to get out of the line, or below the grade. It is necessary therefore, that the assistant or some one under him, should be upon the ground almost daily. These stakes must be frequently replaced, and the centres run.

Another important item in the construction of the road, and the labor of the assistants, is the masonry. This requires almost constant inspection. The value of masonry must depend very much upon the character of the materials used; and in the absence of an inspector, the contractor might use improper materials; and inspection here is more necessary during the progress of the work, as a fraud could not, in many cases, be detected after the work is completed.

The labors of the assistants in relation to the masonry, is heightened by the fact, that the foundation for all bridges and principal culverts is not included in the contracts, but is laid by the day. This renders the presence of the assistant the more important, as he has not only to inspect the work, but to see that the hands labor industriously. Another important field of labor for the assistants is this: the contracts for the grading are made for a specific sum for excavating every cubic yard of earth; another and greater sum for every yard of loose rock, and a still greater sum for every yard of solid rock. All rocks up to a certain size are, by the contract, deemed to be earth; from that size up to another given size, they are deemed to be loose rock, and all above that solid rock. In some sections, where rocks abound, the presence of the assistant is required almost hourly, to examine the stone and decide to which particular class they belong; otherwise, the contractor might pass off for loose rock what ought to be considered earth, and for solid rock what should be deemed loose rock.

In the progress of the work, unforeseen obstacles frequently present themselves, rendering it expedient to change the grade or the location. This requires the time and the attention of the assistant. There is also a class of periodical labors which devolve upon these officers. The contractors are paid every month;

this renders it necessary that the work done on the whole division should be measured and estimated once in thirty days, and the amount painted upon the profile and transmitted to the office of the resident engineer. This throws a large amount of labor upon the assistants in the short space of a few days. Add to this, when the work is completed, the whole is accurately measured and estimated, section by section, to furnish the basis for the final settlement with the contractors.

There is also a large amount of office labors to be performed. Accurate plans must be made to file with the County Commissioners; every land owner has a right by statute to demand a plan of his land before it is entered upon. This is furnished by the assistant. The agent requires a plan or an accurate description of the location by which to frame his deeds and settle the land damages. The working plans for the masonry, form a considerable item. There is another branch of labor connected with the masonry. The contractors took the stone where they could get them easiest, without any reference to the cost to the Corporation for damages to land. This system entailed upon the assistants the labor of settling the damages for taking stone. This system is now generally abandoned, and it is made the duty of the assistant to select the stone, and negotiate with the land owners for the damages. In some cases of land damages, it is found expedient to buy the farm or lot crossed by the road; in such cases, the assistant has to survey the land and make out a plan for the agent. These labors, minute as some of them may appear, cannot well be dispensed with economically. In various respects, in ways almost innumerable, these officers can save the Corporation more than the amount of their pay. Take a section where there is, by estimate, an excess of excavation over the embankment of, say, five hundred yards. The contractor might find it for his interest to waste this amount before he completed his embankment. But it may so happen that some part of the earth under the embankment may give way, and let the embankment settle, and this supposed excess may be needed to bring it up to grade. An engineer on the spot, seeing an indication in the earth, under the embankment, to give way, will immediately arrest the wasting of earth, and order it to be carried and placed upon the embankment which is settling. In this way the Corporation may be saved from the charge of land damages, by borrowing earth out of the line of the road, and perhaps from

land damages by wasting earth upon it; and also from the expense of paying for double excavation.

Of nearly the same character is another saving that may be made by the constant inspection of the assistant. Different kinds of earth shrink in different ratios by being removed. This shrinkage may vary the supposed balance of cut and fill so as to affect the borrowing or wasting. The assistant, by observing the nature of the soil, may give direction to the contractor, so as to have the excavation and embankment balance each other; and thus save the expense of wasting and borrowing. Whereas the contractor, whose interest is different from that of the Corporation, might answer his end better by borrowing in one place and wasting in another, though it might subject the Corporation to an extra charge.

These labors, or something like them, devolve upon each assistant or master of a division. The assistants have generally four persons under them, who aid them in the performance of their labors, and who receive from one to two dollars per day for their services, and find themselves. We have remarked before, what every one knows, that the resident engineer has the general supervision of the whole road. All the business of the assistant engineers passes under his inspection, and all difficult parts of the road receive his personal examination. He is also liable to be called unexpectedly to distant parts of the line. When any thing of a difficult character presents itself, the assistant immediately calls upon the resident engineer, who must immediately, either in person, or by letter, give the information needed. The resident engineer is also associated with the agent in putting the road under contract, and in obtaining the necessary materials for bridges, superstructure, &c. Perhaps we cannot better describe the labors of the resident engineer, in this respect, than by giving a brief account of the manner in which the contracts for grading are made. The road is divided into sections, so as to have the excavations and embankments balance each other as nearly as practicable. They then advertise for proposals for each section. When the proposals have come in, they are all arranged and recorded by the engineer. If the proposals are reasonable, they close with the lowest responsible bidder; if the proposals are not reasonably low, in any case, that section is reserved for a future contract. When the proposals are closed with, a written agreement is entered into, and signed and delivered in the pres-

ence of witnesses, by which the Corporation, by their agent, agree to pay so much per cubic yard for excavating earth, so much for loose rock, so much for solid rock, and so much for masonry, &c. And the contractor agrees on his part to do the work in a given time, to the acceptance of the engineer. One distinguishing feature in these instruments is, that the engineer has almost unlimited power over the contract, and may change, modify or annul it, at his pleasure.

This throws great responsibility upon the engineer, together with no small share of labor. All the money expended for the graduation and masonry is disbursed by the engineer. The oversight of more than 100 miles of road, and the labors connected therewith, must necessarily employ the time of one individual. The manner in which the contractors are paid, is attended with some extra labor. We have before said, that the assistants measure and estimate the amount of work done on each section every month. These returns are made to the engineer, and from these data the monthly pay is made out; but to ensure the completion of the work, or to save harmless the Corporation in case of failure, a certain amount is retained by the engineer. There is necessarily a large amount of clerical labor devolving upon the engineer. Correspondence must be had, copies of which are retained in his office; accounts of all money received and disbursed there, must consume considerable time. His extended line of road requires him frequently to be from home, and hence much time must be expended in travelling.

The Committee also inquired into the character and amount of labor devolving upon the agent and his assistant. Their principal duties relate to land damages, though these are not by any means their only duties. The general plan of operations in relation to land damages, is this. The agent goes over the line and ascertains the names of the land owners, and obtains a release of the land, in all cases where it is practicable, before the location is made. But in most cases this cannot be done; in which event the agent goes over the road, measures the length of each man's land on the line of the road, ascertains the width of the location at all parts, and then commences a negotiation with the land owner. This requires much time and patience. The first attempts to negotiate generally prove abortive. Land owners, for the most part, are unwilling that their farms or lots should be cut up, and it generally so happens that the road, in their

estimation, crosses their land just where they are the most unwilling to part with it. It is a new subject to them; they are not prepared to act then; they want a little time to consider of it—to see how they are to be affected by the road, or to ascertain what damages their neighbor obtains. Their tale of grievances must be listened to; the descent of the property, the productiveness of the soil, the richness of the Corporation, the arbitrary character of the law, by which the Corporation are authorized to take the land of the citizen without his consent—all these and many other things must be related, and heard too, with a great degree of patience; and then, after spending an hour or two, the agent is told that he will do nothing at that time; if he will call again he will talk with him on the subject. Or, if terms are offered by the land owner, they are generally so high that they cannot be complied with. Visit after visit must generally be made before the negotiation can be closed.

In this way much time must be spent, and but little is brought to pass. If some are more reasonable and agree at once, others are more unreasonable and will not agree at all. In such cases, after a fruitless negotiation, the County Commissioners must be called upon to appraise the damages; this, perhaps, is followed by an appeal to a jury. In all such cases the agent, or some one authorized by him, must be present, and to present the case to the commissioners or jury. It also frequently happens, that the owner lives at a distance, or that the land is held in common by a number of individuals, or is in the hands of guardians, or administrators, or trustees, all of which circumstances impede the negotiation, and increase the labor of the agent.

Another no inconsiderable amount of labor connected with this business, relates to the titles of the land. The agent, in all doubtful cases, examines the records to see if the land is free from incumbrances, and to ascertain in whom the fee is. After he is satisfied on these points, and the negotiation is closed, the agent makes out a deed of the land taken, and has it recorded in the Registry of Deeds for the county where the land is situated. These deeds are very minute, describing the land by the foot, and occupy two or three times the space of ordinary deeds.

This branch of the agent's business is of the most perplexing character, and must necessarily consume much time. It is also important to the Corporation, that it should be managed with great caution and prudence, and, consequently, with much delay.

The saving to the Corporation of a cattle culvert, or a farm bridge, will generally more than compensate for weeks of time spent in negotiation. And experience has shown, that negotiations, though protracted, are to be preferred on the ground of economy, to the calling out of the commissioners.

The crossing of highways, in some cases, imposes considerable labor upon the agent. When the highway is to be raised or lowered, or its location to be changed, the selectmen or commissioners are to be called upon, and the case is to be decided after a hearing of the parties. The agent performs the professional duties for the Corporation,—such as appearing before the commissioners, juries, and the like. The negotiation which has been going on in relation to the Pontoosuc Turnpike, has occupied some of the agent's time. He also, as we have before remarked, makes in connection with the engineer, all the contracts for the grading of the road, and the purchase of lumber for bridges, and for the superstructure of the road. The contracts for lumber have, in most cases, been made at a distance. The inhabitants on the line of the road, supposing the Corporation to be within their power, have generally, it is thought, been somewhat exorbitant in their demands for lumber. This has subjected the agent to the necessity of seeking supplies at a distance. He has, also, in several cases, purchased land, with wood standing thereon, for the purpose of obtaining lumber cheaper than it could be bought of individuals.

The office labors of the agent are very considerable. His correspondence must be somewhat extensive, all of which is a matter of record; the receipts and expenditures of the department, must all be recorded; abstracts of all contracts are entered in a book kept for that purpose, and copies of them are furnished to the engineer and to his assistant on the part of the road to which they relate. These, together with the deeds, releases, &c., make a large amount of clerical labor. The Committee examined the books and papers in the offices of all the departments, and found them neatly, and, as far as they could judge from a very cursory examination, correctly kept.

On the whole, the Committee are fully satisfied, that there is business enough in each of the departments, to engross the whole time of the several officers employed, and in the agent's department, extra labor, at times, is indispensable.

Nor are the Committee aware, from any thing they could

discover, or learn from others, that any of these officers were neglectful of their duties. They were, on the contrary, pleased with the active business talents exhibited by the different officers. And, from inquiries made of individuals on the line of the road, they learned that there was an impression among those who had done business with him, that the agent was active and shrewd, and managed the business of his department wisely for the Corporation. The Committee believe, from what they have been able to discover, that they can congratulate the Board and Corporation, upon their good fortune in selecting wise, judicious and faithful officers in all the departments of their business.

One branch of the order required the Committee to examine the manner of the fulfilment of contracts. We are not exactly aware of the import of these instructions. We have already stated, that the contracts for grading and masonry, are to be fulfilled to the acceptance of the engineer. The contracts for sleepers, &c., require that they should be of certain kinds of wood, and of a given size; the contracts for land are fulfilled by the giving of a deed. If this is what was contemplated by the order, we have complied with its provisions. But if it is intended that the Committee should examine, personally, the work in the one case, and the materials in the other, they have not done it to any considerable extent; nor can it be done until the work is accomplished, and the materials delivered. Wherever the work was finished, it appeared to be of the most substantial kind, and executed in the best manner.

Having stated thus minutely the result of their inquiries, the Committee submit the whole subject to the consideration of the Board.

CHARLES HUDSON, }
AMASA WALKER, } *Committee.*